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ABSTRACT

This paper examines current literature on invented spelling and analyzes its value and use in the course of formal spelling instruction. The paper is divided into four sections which (1) examine the evolution of the term invented spelling; (2) detail spelling strategies and the stages of spelling development; (3) show the relationship between invented spelling and standard spelling instruction; and (4) present some applications to second grade spelling instruction. It includes a 30-item annotated bibliography. The paper recommends that interested adults encourage creative writing for children as a way to explore and develop spelling strategies, accept and encourage invented spelling in all stages of development, and become familiar enough with the stages of spelling development and invented spelling to understand the child's reasoning behind it. The paper also recommends the use of teacher-generated spelling lists based on student need and use. Thirty-seven references are attached. (MG)

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THE FUNCTION OF CHILDREN'S INVENTED SPELLING IN SPELLING INSTRUCTION

by

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A Study Directed

by

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Submitted in partial fulfillment of the requirements
for the course E591--Exit Project
Indiana University at South Bend
April, 1989

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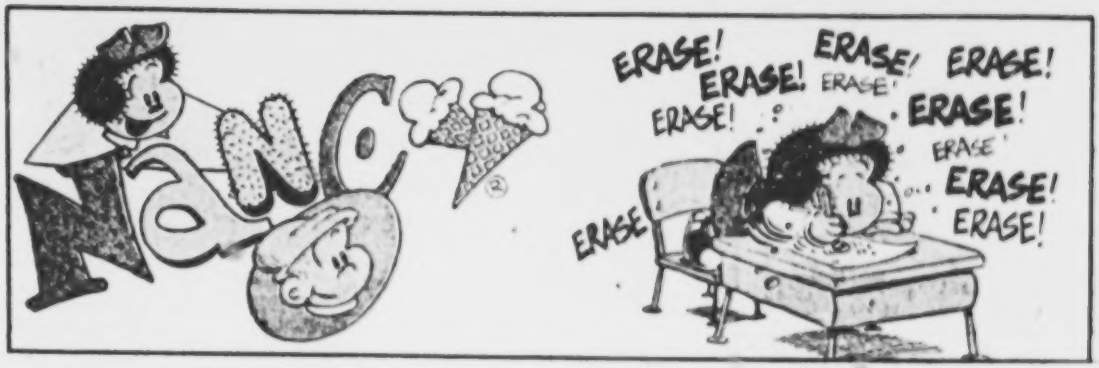
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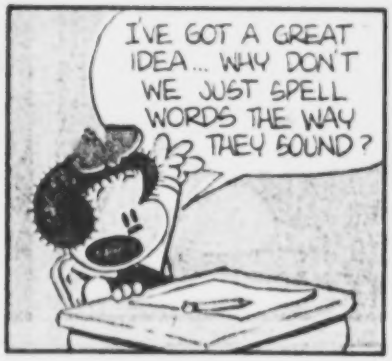
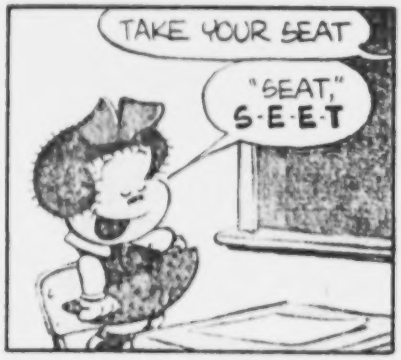

I'VE GOT A GREAT IDEA... WHY DON'T WE JUST SPELL WORDS THE WAY THEY SOUND?

IT ONLY MAKES SENSE, RIGHT?
BE QUIET, NANCY

GOOD EXAMPLE! "QUIET," K-W-Y-I-T... GET IT?


TAKE YOUR SEAT
"SEAT," S-E-E-T

THIS IDEA WILL SWEEP THE COUNTRY!
I'LL BE B-R-I-L-Y-U-N-T!
I'LL BE F-A-M-U-S!

I'LL BE IN D-E-T-E-N-S-H-U-N

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INTRODUCTION

In 1971 separate studies began categorizing error patterns in children's preschool attempts at spelling (Read 1971, C. Chomsky 1971). The term invented spelling was given to the spelling systems used by the children (Read 1971). By studying preschool and primary children's spelling errors, a systematic approach to spelling became apparent (Beers, Beers, and Grant). Similarly there surfaced specific stages in the development of invented spelling in correlation to the stages of regular spelling development (Gentry 1982, Hall and Hall, Read 1971, C. Chomsky 1971). Formal spelling instruction should involve the understanding and use of these stages, including invented spelling (DiStefano and Hagerty). By second grade most children are developmentally ready for standard spelling instruction (Beers, Beers, and Grant, DiStefano and Hagerty). Awareness of the stages children have progressed through, and may be in still, will help the teacher analyze spelling errors and plan effective spelling instruction.

STATEMENT OF THE PROBLEM

The purpose of this paper is to examine the current literature on invented spelling and determine its value and use in the course of formal spelling instruction.

ORGANIZATION

This paper is divided into four sections. The first part traces the evolution of the term invented spelling and fundamental studies of the phenomenon. The second section details spelling strategies used by elementary school children and the stages of spelling development. The third portion shows the relationship between invented spelling and standard spelling instruction. The final portion presents some applications to second grade spelling instruction.

LIMITATIONS OF THE STUDY

Although invented spelling is a natural part of the spelling development of many children, the following examples limit its study and usefulness.

1. The impact of informal learning and other important influences on children's spelling development such as tolerant and encouraging home and school environments cannot be controlled by investigators of invented spelling (Gentry 1981, Read 1975, C. Chomsky 1971).
2. The English alphabet itself limits the choices young spellers have in representing the words they want to write, and their own personal phonetic insight may constrain these choices even more (Read 1975, 1986).
3. Not all children are creative spellers, and not all creative spellers make the same spelling choices. Individual judgments as to the phonetic qualities of certain letters vary according to the cognitive development of the child (Read 1975, Beers and Beers 1980).

4. In order to effectively use invented spelling, teachers must be aware of current research on the topic and be familiar with the various stages of spelling development and the strategies employed at each stage. (Johnson, Langford, and Quorn, Gentry and Henderson).

5. Individualized observation and instruction give the most complete picture of both the process and product of nonstandard spelling. It is best to watch a child as he writes and verbalizes his spelling choices, but this may be difficult to do in an average to large sized class (Hall and Hall, Zutell 1978).

6. Curriculum must be designed to keep up with current research, incorporating both the limited nature of our written language and the nature of the learner (Hodges).

GLOSSARY

affricate - "a speech sound which is a combination of a stop and a fricative; the stop is released slowly with the result that a fricative is heard. ... Such a combination of sounds is usually called an affricate only if it functions as a single phoneme." (Hartmann, p. 7)

alternation - "the existence of two or more variants...in a paradigmatic relationship, e.g.,...the representation of one phoneme by more than one symbol, e.g., /i/ in English as ee as in meet or ea in meat, or ei in receive or ie as in retrieve." (Hartmann, p. 11)

alveolar - "...a consonant sound in the production of which movement or placement of the tongue in relation to (the alveolar) ridge plays an important part; t,d,n,l,r,s,z, and sh are alveolar consonants." (Good, p. 27)

cluster - "a sequence of linguistic elements which may be sounds...or parts of speech..." (Hartmann, p. 39)

Correct - spelling stage in which "the child recognizes and recalls the correct lexical representation. The entire word is spelled correctly." (Gentry, 1978, p. 90)

Deviant - see "Precommunicative".

flap - "a speech sound produced when an active articulator such as the tongue or lower lip is in rapid momentary loose contact with a passive articulator." (Hartmann, p. 86)

frequency - "the number of times a linguistic item such as word, syllable, or phoneme occurs in a portion of text or recording." (Hartmann, p. 89)

fricative - "a speech sound which is produced as a continuous sound by forcing air through a partially obstructed vocal tract in such a way that the friction is audible with or without voice. ..." (Hartmann, p. 90)

language experience approach - "an integrated language arts program which builds upon the interrelationship between and among reading and the related language arts of writing, speaking, and listening; use is made of individual and group compositions as reading materials in the language experience approach to reading." (Good, p. 329)

lax - "a vowel sound produced with relatively little muscular tension. ... This difference in tension can be felt by placing the thumb and forefinger under the lower jaw whilst pronouncing the words one after the other: bit (lax), beat (tense)." (Hartmann, p. 127)

letter-name strategy - "...the speller represents words, sounds, or syllables with letters that match their letter names, e.g., R (are); U (you); LEFT (elephant) instead of representing the vowel and consonant sounds separately." (Gentry, 1982, p. 194)

lexical representation - "a direct point-by-point transcription of an (orthographic) system that the speaker of English has internalized and uses freely." (N. Chomsky, p.4)

lexical spelling - "deciding how words are to be represented in the grammar's dictionary, or lexicon." (C. Chomsky, 1970, p. 288)

liquid - "a term used to refer collectively to apico-alveolar continuant sounds such as [r] and [l] ." (Hartmann, p. 133)

marker - "a special feature of a linguistic unit which indicates its class or function. Markers may indicate the category of a linguistic unit at any level of analysis." (Hartmann, p. 137)

morphology - "...a branch of study dealing with language form and structure, including the origin and function of inflectional forms." (Good, p. 374)

nasal - "one of the sounds formed by using the tongue and palate to direct the sound into the nose, such as m,n, and ng." (Good, p. 381)

orthography - "spelling according to standard use; the study of spelling." (Good, p. 404)

phone - "in phonology the smallest possible segment of sound abstracted from the continuum of speech." (Hartmann, p. 170)

phoneme - "1) a single speech sound; 2) a group of slightly varying forms of what is generally considered to be one speech sound but that vary according to stress, rate of articulation, adjacent sounds, etc....; 3) in linguistic analysis, a family of sounds in a given language which are related in character and are used in such a way that no one member of the family ever occurs in the same phonetic context as another member." (Good, p. 420)

phonemic spelling - "system of spelling words according to their sounds, using a phonemic alphabet." (Good, p. 551)

Phonetic - spelling stage in which "the letters are assigned strictly on the basis of sound, without regard for acceptable English letter sequence or other conventions." Gentry, 1978, p. 91)

phonetics - "1) the science of speech sounds; 2) the analysis of words into their constituent sound elements." (Good, p. 421)

phonics - "a method of teaching reading by training the learner to associate a particular sound with a particular symbol." (Hartmann, p. 174)

phonology - "the study of the history and theory of speech sounds and sound changes." (Good, p. 421)

Precommunicative - the spelling stage "where a child first uses symbols from the alphabet to represent words" but with "a lack of knowledge of letter-sound correspondence." (Gentry, 1982, pp. 193,194)

Prephonetic - the spelling stage characterized by "one, two, or three letter spellings" which "lack some of the essential phonetic elements needed to represent the surface structure of the word." (Gentry, 1981, p. 379; Gentry, 1978, p. 92)

retroflex (vowels) - "a speech sound articulated with the tip of the tongue curled upwards and backwards toward the hard palate, e.g., [r] in English red." (Hartmann, p. 197)

Semiphonetic - see "Prephonetic"

sonorant (consonant) - "a term sometimes used to describe nasal and liquid sounds, which may form a whole syllable on their own, e.g., [n̩] in button." (Hartmann, p. 211)

stop - "a speech sound which is the result of a complete closure in the vocal tract. ..." (Hartmann, p. 219)

syntax - "that branch of grammar which is concerned with the study of the arrangement of words in sentences and of the means by which such relationships are shown, e.g., word order or inflexion." (Hartmann, p. 231)

tense - "... A tense vowel is produced with more muscular tension than a lax vowel. ... This change in tension can be felt by placing the thumb and forefinger under the lower jaw whilst pronouncing the words one after the other: beat (tense), bit (lax)." (Hartmann, pp. 235-236)

Transitional - the spelling stage in which "the speller begins to assimilate the conventional alternatives for representing sounds. ... (undergoing) a transition from (phonological clues) to...visual and morphological representations." (Gentry, 1982, p. 196)

ANNOTATIONS

DEFINITION OF AND EXPLORATORY STUDIES IN INVENTED SPELLING

PHONOLOGICAL BACKGROUND

Chomsky, Noam. "Phonology and Reading," Basic Studies on Reading, Ed. Harry Levin and Joanna P. Williams. New York: Harper and Row, 1970, pp. 3-18.

In his study of English orthography Chomsky described it as a nearly perfect system for transcribing sound to print. Through casual observation Chomsky found that children are more keenly aware of phonetic detail than adults, and therefore are more particular in their lexical representation of sounds.

Chomsky, Carol. "Reading, Writing, and Phonology," Harvard Educational Review 40.2 (May 1970): pp. 287-309.

Chomsky's stated purpose was to explain the abstract nature of sound/letter representation and show its relation to oral language, reading instruction, and spelling instruction. To this end she created the term "lexical spelling" to refer to the abstract representation of words in relation to grammar. While this is an advanced concept for children, it can be used by the teacher to show spelling regularity in other than phonetic forms. The child can use lexically related words to help spell new words rather than "sounding them out". Chomsky supplied several model spelling lessons to advance her ideas. In regards to misspellings she advised a search by teacher and student for the reason behind the correct spelling.

FUNDAMENTAL WORKS

Read, Charles. "Preschool Children's Knowledge of English Phonology," Harvard Educational Review 41.1 (February 1971): pp. 1-34.

This study is one of two most widely referred to by other researchers in invented spelling. Read reported in detail the error patterns in spelling of 20 preschoolers. The subjects knew the letter names of the alphabet and had started spelling with manipulatives and then in written form. The parents of the studied group were middle-class professionals who were responsive to and supportive of their children's early attempts at writing. The discovered error patterns concerned vowels, vowel alternations, affrication, flaps, nasals, syllabic segments, and alternations. Read determined from his study that each child created the same basic system for spelling. He concluded that children have a spelling structure based on phonology before being introduced to formal reading and writing. Teachers need to respect these structures and use them to help the child discover correct spelling rather than correct them.

Chomsky, Carol. "Invented Spelling in the Open Classroom," Word 27 (1971): pp. 499-518.

Chomsky's article is essentially an abstract of Read's original study (1971) with added commentary. She determined that invented spelling may occur in a child who can group words by initial sound, rhyme, and final sound. Some patterns common to all inventive spellers were letter-name spelling of both consonants and long vowels, use of l and r syllabically, substitution of chr and jr for tr and dr, and early omission of short vowels. Chomsky found the invented spelling phenomenon was not restricted to "creative" children, but did correspond with an encouraging environment conducive to experimentation. Inventive spellers made the transition to standard spelling with ease when necessary, regardless of school curriculum or emphasis. Chomsky advocates writing before reading, with teacher acceptance and encouragement of invented spelling.

Chomsky, Carol. "Write First, Read Later," Childhood Education 47 (March 1971): pp. 296-299.

According to Chomsky, children should learn to read from their own creative writing attempts. Young children use their phonetic acuity to relate sound to print, then reverse the process to recognize the message created. In this way the child is intrinsically involved with his own learning. Chomsky reported an informal observation of a three year old who used plastic figures to spell simple words (wet, to) using both syllabic and alphabetic principles. The spellings were correct to the child's pronunciation and the chosen words were meaningful. Chomsky used the observation to support her theory that self-directed learning is a reward unto itself. When a child is an active participant in his own instruction, he trusts his abilities and responds more readily to learning to spell conventionally.

Read, Charles. "The Invented Spelling," Children's Categorization of Speech Sounds in English. Urbana, Ill.: National Council of Teachers of English, 1975, pp. 29-78.

In this chapter of Read's monograph he continued to analyze the relationship between children's phonetic categories and spelling. After a review of his initial findings, Read subdivided his results into the following areas: vowels, /tr/ clusters, retroflex vowels, sonorant consonants, intervocalic flaps, and alternations involving voicing. Through this closer scrutiny Read made conclusions regarding vowel spelling, categorical inferences, the children studied, strengths and weaknesses of the spelling evidence, and educational significance. Ultimately Read found out that children beginning school may have preconceived systems to help them relate the many sounds of English to its limited alphabet. These systems, often subconscious, are based on the child's phonological awareness and categorization of sounds for spelling in a relatively systematic way.

Read, Charles. "Creative Beginning Spelling," Children's Creative Spelling. London: Routledge and Kegan Paul, 1986, pp. 1-41.

Read explained his 1975 study based on two theses: children's early attempts at spelling are phonetic and creative. When children invented the same spelling independently it showed an underlying similarity of sound categorization based on phonetic similarities. By examining the study again Read came to three conclusions, that creative spellings are phonetically accurate, they imply sound classification, and they reflect which phonetic properties are prominent among children. In short, spelling develops from the concrete and simple to the abstract and complex representation of English specch sounds.

Read, Charles. "Children's Judgments of Phonetic Similarities in Relation to English Spelling," Language Learning 23.1 (1973): pp. 17-37.

Read expanded his previous study (1971) to analyze children's categorization of phonetic units in relation to adult usage. He conducted oral vowel tests on 32 six-year-olds, 24 seven-year-olds, and 19 adults to check their judgment of vowel similarity. He found the children's judgment was consistent rather than random, that they already had an internal pattern of vowel spellings as early as age five. Read's second set of studies on the same groups concerned /tr/ clusters, and showed that in some cases phonemic spelling might be suitable although the relationship of phones to phonemes might seem wrong to adults. He conducted this study in three forms, one for each group, and added a test group of 32 kindergarteners. His conclusion was that before reading instruction begins children have already learned to make phonetic generalizations and to apply them to future classification. Read's final test was of first grade spelling, and he determined that there is not always a direct relationship between spelling and sound similarity. Read's final conclusion was that children do have a valid system of categorizing and spelling words based on their phonetic analysis, an analysis which may not match adult perceptions but is valid nevertheless.

Paul, Rhea. "Invented Spelling in Kindergarten," Young Children 31.3 (March 1976): pp. 195-200.

Paul conducted an informal study of her own kindergarten class in light of the work done by Read and C. Chomsky. The children involved had dictated stories and picture titles, but were all encouraged to try writing independently. Paul viewed the results in relation to the child's level of reading readiness, and constructed four stages of spelling: use of only initial letters of words or syllables, addition of final letters, attempts at spelling short vowels, and nearly standard spelling. Paul's observations supported the findings of Read and Chomsky, including the assertion that invented spelling does not inhibit later correct spelling.

STAGES OF SPELLING DEVELOPMENT

PROGRESSIVE SPELLING STRATEGIES

Beers, James Wheelock, Carol Strickland Beers, and Karen Grant. "The Logic Behind Children's Spelling," The Elementary School Journal 77.3 (January 1977): pp. 238-242.

This informal study was based on error analysis of the spelling of selected first through fourth graders in Michigan. Instruction was determined to be an irrelevant factor in error patterns. Three main spelling strategies were used by the subjects: letter-name representation of vowels, extra vowels following correct ones based on aural or visual miscues, and wrong interchange of short vowels. Use of these strategies diminished as years of schooling increased. However when faced with low frequency words the children often reverted to the less advanced strategy. The authors felt that reflected a lack of mastery of word attack skills, and advocated delaying formal spelling instruction until children have had adequate practice and development of these skills.

Beers, James W. and Edmund H. Henderson. "A Study of Developing Orthographic Concepts Among First Graders," Research in the Teaching of English 11 (Fall 1977): pp. 133-148.

Beers and Henderson studied the spelling errors of 25 first graders for six months to discover the presence or absence of progressive patterns which could be used by the student to make internal spelling rules. Monthly writing samples from students in a language experience approach program were used in the study. Progressive spelling strategies were uncovered and described. The first stage used a letter-name strategy based on articulation. This affects vowel spellings, especially for short vowels. The next level improved both vowel and consonant spelling by understanding that letters are used as symbols for sounds, not just representatives of the sound. The third level showed children beginning to move beyond strict phonetic spelling by building on a store of information from various sources. This included knowledge of morphological endings and syntax. Beers and Henderson concluded that children develop in spelling by assimilating new information and using it to refine their own spelling rules.

Zutell, Jerry. "Spelling Strategies of Primary School Children and Their Relationship to Piaget's Concept of Decentration," Research in the Teaching of English 13 (February 1979): pp. 59-80.

Zutell's study was devised to expand upon previous studies of spelling patterns (Beers and Henderson, Read 1971, 1973) and to compare them to stages of cognitive development. The subjects were 60 students in grades one through four. Whole classes were screened to find suitable subjects who knew what letters and words were and could write. Three hypotheses were made and proven. First, spelling proficiency increased proportionally to years in school. Second, performance was dependent on word categories such as lax and tense vowels, tense markers, consonant doubling, and vowel extension. Finally, strategies varied by both grade level and category. Zutell concluded that spelling development involved active input from the learner. The scientific discovery method of questioning, testing, and evaluating can be applied to orthography.

FIVE STAGES DEFINED AND REFINED

Gentry, J. Richard. "Learning to Spell Developmentally," The Reading Teacher 34 (1981): pp. 378-381.

Gentry parallels language and spelling progression to come up with five stages of spelling development. The beginning stage is labeled "Deviant" for its unordered use of letters. The stage which first shows knowledge of sound-letter correspondence is called "Prephonetic". When this correspondence has been perfected the child is in the "Phonetic" stage, and can begin to create and communicate in writing. In early primary school the young writer generally has progressed to the "Transitional" stage in which words begin to more closely resemble standard orthography. The final stage, "Correct", is the evidence that the child is ready for formal instruction. Gentry advises adherence to this, whether it means early or delayed instruction. He recommends several procedures to build spelling consciousness and competency: the language experience approach, independent writing, and teacher acceptance of all stages of development.

Bissex, Glenda L. GYNS AT WRK: A Child Learns to Write and Read. Cambridge: Harvard University Press, 1980.

Bissex studied her son Paul's spelling in both home and school work from age five to age eleven. She collected creative writing samples and analyzed them, often involving Paul in that process. She also taped some of those sessions. She compared home writing with school writing and found that there did not seem to be carry-over in either direction in the early years. Once begun Bissex related her study to the work of Charles Read. She discovered many of Read's patterns applied to Paul. Bissex determined that learning to spell was not a rote procedure but progressive development in understanding and mastering English orthography. Paul constantly revised and expanded his personal spelling patterns. Bissex concluded that allowing a child to develop a repertoire of spelling options rather than automatically correcting errors would help both student and teacher in understanding and using invented spelling in instruction.

Gentry, J. Richard. "An Analysis of Developmental Spelling in GYNS AT WRK," The Reading Teacher 36.2 (November 1982): pp. 192-200.

Gentry applied his five stages of spelling development to Glenda Bissex' case study of her son Paul. Using examples from Bissex, Gentry further explained his stages by reducing each stage to several specific skill areas. Gentry renamed the "Deviant" stage as "Precommunicative" due to negative associations with the previous label. He also renamed the "Prephonetic" stage as "Semiphonetic" to clarify it. Although progression through the five stages is usually gradual, Paul moved through some stages very quickly, a fact Gentry attributed to the study being conducted by Bissex. To conclude, Gentry offered several teaching guidelines to build a strong base for future spelling development. These tips emphasize creative writing and deemphasize mechanics and correction.

Hall, Susan and Carol Hall. "It Takes a Lot of Letters to Spell 'ERZ'," Language Arts 61.8 (December 1984): pp. 822-827.

Hall and Hall used case studies of two five-year-olds in an attempt to examine more closely the beginning stages of invented spelling. They determined there to be a new stage which they labeled "Intermediate". This stage combined the results of prephonemic spelling (random letter choice showing an ignorance of letter sound correspondence) with the process of early phonemic spelling (in which one or two specifically chosen letters stand for an entire sentence). Hall and Hall are concerned that analysis of product only can be misleading and that analysis of the process as well as the product must be performed before labeling the speller's level of development. What appears to be random choice may have a great deal of analyzed thought behind it.

INVENTED SPELLING AND STANDARD SPELLING INSTRUCTION

TRADITIONAL METHODS OF INSTRUCTION

Johnson, Terry D., Kenneth G. Langford, and Kerry C. Quorn. "Characteristics of an Effective Spelling Program," Language Arts 58.5 (May 1984): pp. 581-588.

The authors examined a large body of research and came up with seven characteristics common to effective spelling programs. First, it is better to learn words from lists than in context. These lists should be words children use frequently, not necessarily high frequency words. Words should be learned whole, not in syllables or through repetitious oral or written work. Phonic generalizations should not be taught, but rather learned by children through casual contact. It is better to pretest and assign words for study than to give the words first. Self correction is a strong component in learning to spell, but developing a learning system is even more beneficial. Spelling should be taught for ten to fifteen minutes each day.

Beers, Carol Strickland and James Wheelock Beers. "Three Assumptions about Learning to Spell," Language Arts 58.5 (May 1981): pp. 573-580.

In this article the Beers' take issue with three traditional assumptions about spelling. First, that learning to spell is based on phonics knowledge. Research cited shows the basis to be phonetics rather than phonics. Children hear sounds acutely but use them differently than adults. A second assumption is that learning to spell requires rote memorization. In actuality, learning to spell has been identified as a developmental progression through several sequential stages. Memorization does not reflect spelling understanding. The final assumption is that writing should be delayed until spelling is correct. The authors felt the two areas should be partnered in learning. Teachers and parents need to encourage writing as a way for children to further develop their spelling strategies.

USING INVENTED SPELLING AS A DIAGNOSTIC TOOL

Anderson, Kristine F. "The Development of Spelling Ability and Linguistic Strategies," The Reading Teacher 39.2 (November 1985): pp. 140-147.

In her article Anderson reviewed the findings of many prominent researchers in the field of spelling learning. She traced spelling development from the invented spelling of young children to the error patterns of college students and found that by studying a student's error pattern it would be possible to determine where in the developmental process things went awry. Anderson advocates the whole language experience, with daily meaningful writing for all instructional levels. She also suggested that proofreading is a valuable skill, not only for self correction but also for teacher use in devising purposeful spelling lists.

Hodges, Richard E. "Research Update on the Development of Spelling Ability," Language Arts 59 (1982): pp. 284-290.

As the title implies, Hodges reviewed current research in spelling, including the work of Read, Henderson, and Beers. He came to four conclusions. First, children's spelling should be studied from the child's perspective. Second, good spellers use a variety of clues, both phonological and graphic, to aid in spelling unfamiliar words. Third, spelling is a vital part of language learning and cannot be truly separated from reading and writing instruction. Finally, learning to spell does not follow a prescribed format but rather the individual's acquisition of a variety of skills and understanding. Hodges noted that as our knowledge of spelling ability increases so increases the challenge of creating a spelling curriculum which effectively uses that knowledge.

Zutell, Jerry. "Some Psycholinguistic Perspectives on Children's Spelling," Language Arts 55.7 (October 1978): pp. 844-850.

Zutell studied Read's work and applied pyschological principles to the learning involved. He determined that children learn a specific word, learn rules behind spelling but overgeneralize their use, and finally come to acceptance and use of correct forms. Based on those stages Zutell suggested that writing be used for self-reflection, with emphasis on content over form. To build spelling awareness children should be read to and encouraged to read independently. The learning environment should provide many opportunities for word study. In regards to invented spelling both teachers and parents should encourage the child's best effort. Avoid saying "sound it out" bacause that is already the basis for most young children's spelling, and it encourages a single strategy rather than experimentation. Children's errors should not be corrected, but the correct forms should be made available to compare with the invented form. Finally, invented spelling should be studied to determine the source of difficulty. Zutell opposed undue emphasis on sound and the typical spelling list-test pattern of instruction.

Hall, Susan E.M. "OAD MAHR GOS and Writing with Young Children," Language Arts 62.3 (March 1985): pp. 262-265.

This descriptive report showed how a kindergarten teacher used Mother Goose rhymes to encourage invented spelling. The course of study Hall presented began with a basic familiarity of a few chosen rhymes. Children rewrote them from memory, using whatever spelling ability they had, and illustrated them. Having prior knowledge of the rhyme made encoding easier for the children. When works were compared in class differences were noted and accepted with the notion that all would improve in time. Using the described format lessened the anxiety over what to write and ensured that the child could "read" both his own work and that of others.

USING INVENTED SPELLING AS AN INSTRUCTIONAL TOOL

Richgels, Donald J. "Experimental Reading with Invented Spelling (ERIS): A preschool and kindergarten method," The Reading Teacher 40.6 (February 1987): pp. 522-529.

Richgels advocates phonics instruction for preprimary children. The ERIS method encourages the use of phonics knowledge in its three nonsequential steps. One step is to present sound/letter correspondences in a purposeful manner. Instruction also involves showing pupils real applications of the knowledge presented. Another facet of ERIS is to utilize all chances to write creatively. In this component teachers are advised to be familiar with the developmental stages of invented spelling and be able to use invented spelling as a tool for learning. Finally, the connection between writing and reading should be enforced through the reading of language experience stories, students' writings, and teacher created stories using both conventional and invented spelling. The ERIS method is not structured, but instead allows for written language experimentation by young children.

DiStefano, Phillip P. and Patricia J. Hagerty. "Teaching Spelling at the Elementary Level," The Reading Teacher 38.4 (January 1985): pp. 373-377.

Experimentation is a vital element in invented spelling. It is also closely linked with creative writing. The authors felt instruction in both spelling and writing should be based on the knowledge of Gentry's five stages of spelling development. For primary spelling instruction DiStefano and Hagerty recommend teacher-generated spelling lists based on student use and need and a high frequency list such as the New Iowa Spelling Scale, as well as the test-study-test method. A one week lesson plan is given. Instruction for the upper elementary grades puts an increasing amount of emphasis on word meaning and word families.

Read, Charles. "Creative Spelling by Young Children," Standards and Dialects in English, Ed. Timothy Shopen and Joseph M. Williams. Cambridge, Mass.: Winthrop Publishers, 1980, pp. 106-136.

This chapter deals with Read's further studies of the creative element in invented spelling. The studies performed dealt with the process behind the written product. Concentrating on a single vowel sound, short e, Read determined that children group English vowel sounds by their own perception of phonetic relationships. When teachers understand the child's reasoning they can recognize which of that child's invented spellings are logical and which are errors. The teacher can also begin to teach the child that in spelling, sounds are not grouped phonetically so as to be interchangeable. Another important idea for teachers is that even within invented spelling there are different levels of development.

Chomsky, Carol. "Approaching Reading Through Invented Spelling," Theory and Practice of Early Reading (vol.2), Ed. Lauren B. Resnick and Phllis A. Weaver. Hillsdale, N.J.: Erlbaum, 1979, pp. 43-65.

Although the main thrust of Chomsky's article is towards the teaching of reading, she also presents some practical applications of invented spelling. Chomsky has long advocated that children write before learning to read, and here developed an instructional strategy around that theory. When children have a chance to invent their own spelling they can more readily accept and learn a standard system. Chomsky observed that reading and writing are often treated as separate entities by children. While transition from nonstandard to standard spelling is usually smooth, it is not always evident in all work simultaneously. In these cases the teacher assists the transition by being available to answer spelling questions and make requested corrections.

APPLICATIONS TO SECOND GRADE SPELLING

Beers, James Wheelock and Carol Strickland Beers. "Vowel Spelling Strategies Among First and Second Graders: A Growing Awareness of Written Words," Langauge Arts 57 (February 1980): pp. 166-172.

Beers and Beers studied 75 first graders and 71 second graders and confirmed their hypothesis that knowledge of written words follows a progression of development related to the child's increasing awareness of words. The letter-name strategy was predominant among first graders, while the second graders had evolved to strategies involving higher order skills with an emphasis on markers. While first graders digressed to letter-name strategy for unfamiliar words despite other knowledge gained, second graders were more able to assimilate and apply their spelling knowledge to new words. These progressions were noted regardless of instructional method. Beers and Beers recommend an emphasis on the exploration of words by children (as opposed to memorization) and examination by teachers of the strategies children use.

Gentry, J. Richard. "Early Spelling Strategies," The Elementary School Journal 79.2 (November 1978): pp. 88-92.

Gentry presented a working guide to using his five stages/strategies of spelling development in classifying children's spelling error patterns. Instead of looking at the stages from lowest to highest development, classification involves beginning at the correct stage and digressing until finding the strategy which fits the error pattern. In addition, Gentry presented his views on the transition from invented spelling to standard spelling and formal instruction. Gentry advised exposure to words throu h reading instruction and creative writing. In this way childre can compare their spelling to standard orthography and begin t conform on their own. This transition is usually made manifest in second grade.

Gentry, J. Richard and Edmund H. Henderson. "Three Steps to Teaching Beginning Readers to Spell," The Reading Teacher 31.6 (March 1978): pp. 632-637.

The three steps espoused by Gentry and Henderson are intended for use by kindergarten, first, and second grade teachers. The steps are: encourage creative writing, deemphasize standard spelling, and respond to nonstandard spelling appropriately. Creative writing gives children a chance to experiment with spelling and begin to learn standard forms. Both teachers and parents who learn to accept the child's invented spelling will notice progress as writing experiences increase. If teachers are aware of the logic behind a child's spelling they can tailor instruction to fit the strategy the child is using and predict strategies yet to come. The transition from strictly phonetic spelling to abstract representation is critical in the ultimate progression towards standard form.

Lancaster, Willie, Laurie Nelson, and Darrell Morris. "Invented Spellings in Room 112: A Writing Program for Low-reading Second Graders," The Reading Teacher 35.8 (May 1982): pp. 906-911.

This article detailed the manner in which a teacher encouraged invented spelling as an invitation to experiment with words. The children observed wrote copiously as the program progressed. Teacher influence was purposely positive and noncorrective. Selected stories were made into books and typed in standard spelling, a change which reportedly caused no problems. By noting the spelling patterns children used the teacher was able to determine in which phonics areas the children needed more instruction. While the program did not directly influence spelling, it did build confidence in spelling and develop in the children an expanding repertoire of spelling choices.

SUMMARY

When Noam Chomsky postulated that children are more aware of phonetic differences than adults he touched the tip of the invented spelling iceberg. While N. Chomsky described English orthography as a nearly perfect system for transcribing sound to print, Carol Chomsky (1970) initially focused on the abstract nature of sound/letter representation. In attempting to relate the abstractness to both oral language and written instruction she coined the term "lexical spelling" to combine abstract representation with grammatical usage. From this, older children were given another strategy for spelling new words which did not rely on the sometimes unreliable phonetic method of "sounding it out".

Using groundwork laid by N. Chomsky and C. Chomsky, Read (1971) performed a landmark study of the error patterns in spelling by preschoolers as an attempt to discover the phonological knowledge they possessed before beginning formal instruction. He found a similar pattern of errors displayed by each of his 20 subjects and concluded that children had developed their own spelling structure based on phonology before formal reading and writing instruction had begun. Read saw this as an asset to instruction and urged acceptance of these errors rather than correction. Read's test group was admittedly biased toward children from middle class professional families, but C. Chomsky (1971a) reviewed Read's study and argued that invented spelling was not restricted to children labeled as creative, but those reared in an encouraging envir nment

conducive to experimentation. She also noted that inventive spellers made the transition to standard spelling with relative ease. As Read did before her, Chomsky admonished educators to accept and encourage children's use of invented spelling, and advocated writing before reading instruction. In an informal observation Chomsky (1971b) showed that when a child is an active participant in his own instruction, he trusts his abilities and is more responsive to learning to spell conventionally.

Read (1975, 1986) examined his own findings and further narrowed the results. He noted that invented spelling most often occurred with vowels, showing that children were aware of them as a separate group within the alphabet. Other categorical inferences were less clear. Read also took a critical look at his original test group, and the strengths and weaknesses of the use of examples of the children's own spelling as evidence of phonological categorization. While his basic conclusion remained the same, Read expanded it to include the idea that invented spelling implied a phonetically accurate classification of sounds, often subconscious, which reflected those phonetic properties prominent among children.

Read also expanded his original study through an additional study (1973) to analyze children's categorization of phonetic units in relation to adult usage. Using test groups of school age children (kindergarteners and first and second graders) and adults, he found out that children's judgments were consisten rather than random, although not always in agreement

with adult judgment. The systems children used were valid as reflections of their phonetic analysis, an analysis which might not match adult perceptions but which was valid nevertheless.

Through an informal study Paul tested the conclusions of Read and C. Chomsky. She encouraged her own class of kindergarteners to write independently, and applied the results to the child's level of reading readiness. Paul constructed a sequence of four general spelling stages, a forerunner of later work by Gentry (1981, 1982). Her stages progressed from use of only initial letters of words or syllables to addition of final letters, followed by attempts at spelling short vowels and ultimately, nearly standard spelling. She supported the findings of Read and Chomsky, including the assertion that invented spelling does not inhibit later correct spelling.

Other studies of children's spelling errors showed children used a variety of strategies when attempting to spell unfamiliar words. In an informal study of selected first through fourth graders in Michigan, Beers, Beers, and Grant identified three common strategies: letter name representation of vowels, extra vowels following correct ones based on aural or visual miscues, and wrong interchange of short vowels. These strategies were most evident in the younger children, showing a progression towards advanced strategies; however children of all grade levels reverted to previous levels when faced with low frequency words. Beers, et al. found this indicative of a lack of understanding of word attack skills

and advocated the delay of formal spelling instruction until children display greater mastery of those skills.

Beers and Henderson studied the spelling errors of 25 first graders for six months to discover the presence or absence of progressive patterns which could be used by the student to make internal spelling rules. They found evidence of three levels of understanding beginning with letter name spelling, followed by the use of letters as symbols rather than strict representation of sound and culminating with a movement beyond phonetic spelling. Beers and Henderson concluded that children develop in spelling by assimilating new information and using it to refine their own spelling rules.

Zutell (1979) devised a study to compare the work of Beers and Henderson and Read (1971, 1973) to the stages of cognitive development. Like Beers, Beers, and Grant he culled subjects from grades one through four, and found that spelling proficiency increased proportionally to the number of years in school. He supported Read's findings that performance was dependent on word categories. As a group the strategies varied by both grade level and category.

More descriptive and concrete than those of his predecessors were Gentry's five spelling stages (1981, 1982), as they labeled stages by their errors rather than by their approach to spelling. The "Deviant" (later "Precommunicative") stage was typified by random use of letters. It was not until the "Prephonetic" (later "Semiphonetic") stage that children showed knowledge of sound/letter correspondence.

When the child had mastered that, he moved to the "Phonetic" stage and could communicate through the written word. In early primary school the young writer generally had progressed to the "Transitional" stage in which words begin to more closely resemble standard orthography. After reaching the "Correct" stage the child is ready for formal instruction. Gentry advocated delaying instruction if necessary to allow the child adequate time to progress through all five stages. To encourage spelling consciousness he suggested the language experience approach to instruction, independent writing, and teacher acceptance of the products in all stages of development.

Gentry (1982) had a unique chance to apply his stages when Bissex did a longitudinal study of her own son's spelling, both at home and at school, from age five to age eleven. She collected creative writing samples and analyzed them, often involving her son in the process. Bissex found her son's patterns reflected Read's findings, but was surprised to discover that home and school spellings were often unrelated. By studying her son's many revisions and expansions in his personal spelling patterns Bissex determined that learning to spell was not a rote procedure, but progressive development in understanding and mastering English orthography. Gentry labeled this development in terms of his own spelling stages and was able to further explain them by reducing each stage to several specific skill areas. Gentry noted that progression through the five stages is usually gradual, whereas Bissex' son moved through some very rapidly. He attributed this to

the nature of the study conducted. Both Bissex and Gentry advised deemphasizing mechanics and correction in children's writing.

After a close examination of the beginning stage of invented spelling, Hall and Hall labeled a new stage "intermediate". This stage appeared prephonemic (Precommunicative) in its resultant product, but was phonemic (Semiphonetic) in its process. Hall and Hall stressed not the label but the implication. Examining the product only can be misleading. Analysis of the process as well as the final product must be performed before labeling the speller's level of development. What appears to be random letter choice may have a great deal of analyzed thought behind it.

Johnson, Langford, and Quorn examined a large body of research to determine the characteristics of an effective spelling program and summarized their findings in seven constituent parts. Word lists were found to be appropriate when made up of words the children need and use frequently. Word lists also focused on spelling alone, while learning words in context added the variable of word meaning to instruction. Words should be presented and learned as a whole rather than in syllables or morphological units. Phonic generalizations should not be taught, but rather learned through casual contact. The test-study method was deemed superior, and instruction should last for ten to fifteen minutes daily. Finally, self correction was judged to be a strong component in learning to spell, but developing a learning system was even more beneficial.

While the authors made no mention of the utility of invented spelling in instruction, the learning systems they mention are reminiscent of the spelling strategies children develop in their attempts at writing.

Supporting the research of Read, Bissex, Gentry and C. Chomsky, Beers and Beers (1981) took issue with three traditional assumptions about spelling instruction. There is a distinction made between phonics and phonetics, and the Beers argued that learning to spell is based on the latter. As Read noted, children hear sounds acutely, but choose to represent them differently than adults. Like Gentry and Bissex, Beers and Beers pointed out that spelling is a developmental progression, and rote memorization will not reflect spelling understanding. Finally, the Beers echo C. Chomsky in opposing the delay of writing until spelling is correct. Beers and Beers encourage both skills in tandem, using writing as a way for children to further develop their spelling strategies.

Anderson also supported daily meaningful writing for all instructional levels, as well as proofreading for self correction and for teacher use in diagnosing difficulties and planning appropriate instruction. Hodges used error analysis in a diagnostic capacity also. He reviewed the work of Read and Henderson and Beers to stress the individualistic nature of learning to spell. Study should be undertaken from the child's perspective and individual acquisition of skills and understanding. Hodges noted that good spellers used a variety of clues in a tempting to spell unfamiliar words, and that

spelling was an integral component of language learning which could not be taught in isolation from reading and writing. Hodge's challenge to educators was to create a spelling curriculum which would effectively use the knowledge of spelling ability.

By studying Read's work from a psychological standpoint, Zutell (1978) determined that learning to spell involved learning specific words, learning and then overgeneralizing rules, and finally accepting and using correct spelling. Zutell presented a variety of procedures to capitalize on those stages, such as self reflective writing and using reading, both independent and by others, to build spelling awareness. He viewed invented spelling as a valuable diagnostic tool for the teacher and an option to merely "sounding it out" for the student. In fact, Zutell opposed undue emphasis on sound as it inhibited experimentation. While he also opposed correction of children's errors, he did feel the correct form should be available for comparison by the child.

While others simply observed invented spelling, Hall reported a kindergarten teacher who encouraged it by having her class write Mother Goose rhymes from memory unassisted. By beginning with a familiar subject the students were able to "read" what they wrote. In peer comparison and class discussion differences were noted and accepted with the notion that all would improve in time. Also concerned with preprimary children, Richgels outlined the Experimental Reading and Invented Spelling (ERIS) method of phonics instruction. The ERIS method consists

of three non-sequential steps: presentation of sound/letter correspondences in a purposeful manner, including real applications of the knowledge presented, utilization of all opportunities for creative writing with invented spelling as a tool for learning, and reinforcement of the reading and writing connection. An interesting application of the latter is the use of teacher created stories using both conventional and invented spelling. The main goal of ERIS is written language experimentation.

DiStefano and Hagerty acknowledged the primacy of experimentation in invented spelling, and urged the use of Gentry's five stages as a foundation for instruction in those areas. Echoing Johnson et al., they recommend the test-study-test method and teacher-generated spelling lists, although they disagreed on the basis of those lists. Both included words students use and need, but DiStefano and Hagerty would also incorporate high frequency words from lists such as the New Iowa Spelling Scale, to which the other authors were opposed.

In far more general terms, Read (1980) stressed teacher understanding of the process behind the product. When teachers understand the child's reasoning, they can recognize which of that child's invented spellings are logical and which are true errors. With a working knowledge of invented spelling and the speller's perspective, the teacher can proceed with instruction mindful of the different levels of development within the class. In regards to the student's part in the learning process, C. Chomsky (1979) developed an instructional strategy based on

her "write first, read later" philosophy. Students who have been allowed to invent and use their own spelling systems can more readily accept and learn a standard system. The teacher acts as an assistant in this transition by being available to answer spelling questions and make requested corrections.

Developmental progression and transition are major components of invented spelling. Beers and Beers (1980) studied first grade spelling strategies as compared to those of second graders and confirmed their hypothesis that knowledge of written words follows a progression of development related to increasing awareness of words. The letter name strategy was predominant among first graders, and was often used with unfamiliar words despite other knowledge gained. Second graders used strategies involving higher order skills and were more apt to assimilate and apply their spelling knowledge to new words. Beers and Beers recommended word exploration over memorization, and teacher awareness and examination of the strategies children employed.

The combination of factors such as years in school and developing awareness of standard spelling makes second grade a pivotal year in the life of the speller. Gentry (1978) noted that the transition from invented spelling to standard spelling and formal instruction most often occurs in second grade. An aid in the transition is exposure to words through reading instruction and creative writing. In this manner children can compare their spelling to standard orthography and begin to conform on their own. With this in mind, Gentry used his

previously stated five stages of spelling development to pinpoint the area(s) of difficulty for an early speller. Instead of tracing the progression, he advised the teacher to begin with the correct form and digress until the strategy matched the error pattern.

Although Gentry advised delaying formal instruction until the child had reached the Correct stage of development (1981, 1982), which is usually in second grade (1978), his work with Henderson seemed to be in conflict by its presentation of three steps for teaching beginning readers (kindergarten through second grade) to spell. In actuality the steps are harmonious with Gentry's admonitions, as they are not related to formal instruction, and in fact support the conclusions of Gentry and other researchers. Gentry and Henderson advised both teachers and parents to encourage creative writing, deemphasize standard spelling, and respond to nonstandard spelling appropriately. Teacher awareness of the logic behind children's spelling allows instruction to be tailored to the child's strengths and weaknesses at that particular time and stage of development. Parental and teacher acceptance and support of the child's efforts will ease the difficult transition from strictly phonetic spelling to abstract representation, a critical step towards the ultimate goal of standard spelling.

While encouraged word experimentation through invented spelling may not directly influence spelling, Lancaster, Nelson, and Morris found it built confidence in a class of low-reading second graders. In the course of their creative writing the class was urged to focus on ideas rather than correct spelling.

The teacher was positive and noncorrective, and encouraged the children to spell according to their own phonetic analysis. As the program progressed selected stories were made into books and typed in standard form, a change which reportedly caused no problems. Both students and teacher benefit from this approach. Through individual experimentation and comparison to standard form, students were able build a repertoire of spelling choices. By noting the spelling patterns used by the students the teacher was able to determine in which phonics areas they needed more instruction.

CONCLUSION

Children entering school for the first time often already have created spelling systems based on phonology to help them relate the many sounds of English to its limited alphabet (Read 1971, 1975). Children are more keenly aware of phonetic detail than adults (N. Chomsky), and their first attempts at spelling reflect that unique perception of phonetic relationship to print (Read 1980). This "invented spelling" is phonetically accurate when examined from the child's point of view, and implies a consistent classification of sounds (Read 1973, 1986).

At first glance early creative spelling may seem random, but upon closer examination it proves to be a valid system of categorizing sounds and spelling words based on individual phonetic analysis. Invented spelling can be a valuable tool for determining which phonetic properties are prominent in the preinstructional mind (Read 1973, 1986). More than a cursory glance is necessary to determine the accuracy of invented spelling. By analyzing the process as well as the written product, the reasoning behind the spelling choices made can be better understood, and distinction between invented spelling and true spelling errors can be made (Hall and Hall, Read 1980).

Continued use of invented spelling in school encourages the child to be an active participant in his own learning. Accepting a child's personal spelling system fosters self-confidence and an increased receptivity to conventional

spelling (C. Chomsky 1971b, Zutell 1979). Allowing a child to develop a repertoire of spelling options helps both students and teachers in understanding and using invented spelling in instruction (Bissex). Research has shown that good spellers use a variety of clues to spell unfamiliar words (Hodges).

Learning to spell does not follow a prescribed format, but rather the individual acquisition of a variety of skills and understanding (Hodges). Children continually refine their own spelling rules by applying new knowledge to their personal systems (Beers and Henderson). Studies have also found that the strategies children used when faced with the task of spelling unfamiliar or low frequency words became more sophisticated in relation to the number of years in school (Beers and Beers 1980, Zutell 1979). In some cases, however, students in the aforementioned situations digressed to previously abandoned strategies, which some feel displayed a lack of mastery of word attack skills. In such cases spelling instruction should be delayed until mastery is achieved (Beers, Beers, and Grant).

Learning to spell is not the rote memorization procedure which so often comes to mind, but a progressive development in understanding and mastering English orthography (Bissex). Some feel the development can be defined in specific stages (Gentry 1981, Bissex) which approximate the progress made towards the ultimate goal of standard spelling.

Although some authors hold that spelling cannot be truly separated from reading and writing (Hodges), in many cases children do perceive them to be separate entities. This

explains why the transition from invented spelling is not always evident in all work simultaneously (C. Chomsky 1979). Once the culminating effects of reading instruction, exposure to correct spelling (not correction) and years in school have prepared the student for standard spelling, the transition occurs with relative ease (C. Chomsky 1971a, Paul), usually during second grade (Gentry 1978).

RECOMMENDATIONS

1. Encourage creative writing from kindergarten on as a way to explore and develop spelling strategies. Emphasize content over form; deemphasize mechanics and standard spelling.
2. Structure a learning environment conducive to word study through a variety of approaches, including but not limited to the language experience approach, daily writing, availability of correct spelling for comparison with invented form, and proofreading for self correction.
3. Teacher (and parent) acceptance and encouragement of invented spelling in all stages of development as a reflection of the child's best effort and a springboard towards the discovery of correct spelling.
4. Become familiar enough with the stages of spelling development and invented spelling to understand the child's reasoning behind it. Use that knowledge and perspective to separate invented spelling from true errors and to determine the source of spelling difficulties.
5. Place instructional emphasis on exploration rather than memorization or any other single strategy. Apply the scientific method (question, test, evaluate) to orthography.
6. Use teacher generated spelling lists based on student use and need, with or without the inclusion of high frequency words. Use the test-study-test method.

7. Delay formal spelling instruction until the child has progressed through all five of Gentry's stages of spelling development and/or has shown sufficient mastery of word attack skills.
8. Use the Experimental Reading with Invented Spelling (ERIS) method for preprimary and kindergarten phonics instruction.

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QUALIFICATIONS:

In my years teaching second grade I have become discouraged with my students' work in spelling. Despite lesson formats stressing common spelling patterns and varied daily practice with the words and patterns I still found that most students did extremely well on tests but did not retain those words or apply the patterns to like words. In researching spelling I came across the term invented spelling. Through my research I can better understand this term and its implications for my grade level. By understanding how my students have already developed in spelling I can plan more effective spelling instruction.